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We claim:

1. A catalytic cracking process, which comprises:

1) catalytic cracking a feedstock in the first riser for less than about 1.5 second and sending the resultant stream into the first separating device;

2) catalytic cracking the recycle oil obtained from the first separating device in the second riser for less than about 1.5 second and sending the resultant stream into the first separating device; and

3) carrying out catalytic reaction of the crude gasoline stream and/or optionally the diesel oil stream obtained from first separating device in the third riser;

wherein the reaction conditions and the catalysts used in the first to third risers are selected according to the requirement for the product of the catalytic cracking process, and the catalyst regeneration and recycle systems are formed respectively for the catalysts used in the first to third risers.

2. The catalytic cracking process said in claim 1, wherein different catalysts are used in the first to third risers.

3. The catalytic cracking process according to claim 1, wherein a same catalyst is used in the first to third risers, said catalyst being a catalytic cracking catalyst.

4. The catalytic cracking process according to claim 1, wherein a same catalyst is used in the first and the second risers, and said catalyst being a catalytic cracking catalyst, while another catalyst is used in the third riser, and said catalyst being one or more catalysts selected from the group consisting of conventional cracking catalysts, catalysts and promoters producing more ethylene-propylene, catalysts and promoters reducing the production of olefins, and desulphurization catalysts and promoters.

5. The catalytic cracking process according to claim 1, which comprises:

The high temperature catalyst coming from regenerator (5) enters the lower part of the first riser (1) and comes into contact with a feed oil, which vaporizes and reacts; after about 1 second, the resultant stream enters the first settler (4) to separate the coked catalyst from the oil-vapor, and the coked catalyst returns to the regenerator (5) for regeneration, thereby forming the first catalyst regeneration and recycle system;

The oil-vapor coming from the first settler (4) enters the fractionation tower (9) for separation; the recycle oil and oil slurry coming from the bottom of the fractionation tower (9) enter the second riser (2) and come into contact with the hot catalyst coming from buffer tank (7) and react; after about 1 second, the resultant stream enters the first

settler (4) for oil/catalyst separation, and the obtained catalyst also returns to the regenerator (5), thereby forming the second catalyst regeneration and recycle system;

The oil-vapor coming from the top of the fractionation tower (9) is separated into crude gasoline (15) and catalytic rich gas (18); the crude gasoline (15) enters the third riser (3) and comes into contact with the catalyst coming from the regenerator (5) and reacts, after 1-5 second, the resultant stream enters the second settler (6) to conduct oil/catalyst separation, and the obtained catalyst returns to regenerator (5), thereby forming the third catalyst regeneration and recycle system.

6. The catalytic cracking process according to claim 1, which comprises:

The high temperature catalyst coming from the first regenerator (5) enters the lower part of the first riser (1) and comes into contact with a feed oil, which vaporizes and reacts, after about 1 second, the resultant stream enters the first settler (4) to separate coked catalyst from oil-vapor, and the coked catalyst returns to the first regenerator (5) for regeneration, thereby forming the first catalyst regeneration and recycle system;

The oil-vapor coming from the first settler (4) enters fractionation tower (9) for separation; the recycle oil and oil slurry coming from the bottom of the fractionation tower (9) enters the second riser (2) and comes into contact with the hot catalyst coming from buffer tank (7) and reacts; after about 1 second, the resultant stream enters the first settler (4) for oil/catalyst separation, and the obtained catalyst also returns to the first regenerator (5), thereby forming the second catalyst regeneration and recycle system;

The oil-vapor coming from the top of fractionation tower (9) is separated into crude gasoline (15) and catalytic rich gas (18); crude gasoline (15) enters the third riser (3) and comes into contact with another catalyst coming from the independent regeneration zone of regenerator (5) isolated therein and reacts; after about 1-5 second, the resultant stream enters second settler (6) for oil/catalyst separation, and the obtained catalyst returns to the independent regeneration zone of the first regenerator (5), thereby forming the third catalyst regeneration and recycle system.

7. The catalytic cracking process according to claim 1, which comprises:

The high temperature catalyst coming from the first regenerator (5) enters the lower part of the first riser (1) and contacts a feed oil, which vaporizes and reacts; after about 1 second, the resultant stream enters the first settler (4) to separate the coked catalyst from oil-vapor, and the coked catalyst returns to the first regenerator (5) for regeneration, thereby forming the first catalyst regeneration and recycle system;

The oil-vapor enters fractionation tower (9) for separation; the recycle oil and oil slurry coming from the bottom of the fractionation tower (9) enter the second riser (2) and come into contact with the catalyst coming from the first regenerator (5) and reacts; after about 1 second, the resultant stream enters the first settler (4) for oil/catalyst separation, and the obtained catalyst also returns to the first regenerator (5), thereby forming the second catalyst regeneration and recycle system;

The oil-vapor coming from the top of the fractionation tower (9) is separated into crude gasoline (15) and catalytic rich gas (18); the crude gasoline enters the descending third riser (3) and comes into contact with another high temperature catalyst coming from catalyst buffer tank (26) and reacts; after about half a second, the resultant stream enters the second settler (6) to conduct oil/catalyst separation; the obtained catalyst enters the catalyst transfer and coke burning conduit (8) and returns to catalyst buffer tank (26) after regeneration, thereby forming the third catalyst regeneration and recycle system;

The oil-vapor coming from the top of the second settler enters stripping tower (10); the resultant top oil-vapor separates into high-octane gasoline and cracked gas, the latter enters a absorptive stabilization and gas separation system; C_4^- olefins (16) obtained in the gas separation system returns to the third riser (3), which comes into contact with the high temperature catalyst coming from catalyst buffer tank (26) and reacts.

8. A catalytic cracking reaction device used in the process according to claim 1, which comprises:

The first catalyst regeneration and recycle system comprising the first riser, the first settler, a catalyst regenerator and a catalyst transfer conduit;

The first separating device for separating the oil-vapor obtained in the first settler, the conduit connecting the first settler to the first separator, the conduit introducing the recycle oil slurry in the first separator into the second riser, and the conduit introducing the crude gasoline and/or diesel oil in the first separator into the third riser;

The second catalyst regeneration and recycle system comprising the second riser, the first settler, a catalyst regenerator, and a catalyst transfer conduit, the reaction mixture in the first and second risers being introduced into the first separator via the same settler; and

The third catalyst regeneration and recycle system comprising the third riser, the second settler, a catalyst regenerator and a catalyst transfer conduit, and the second separator separating the oil-vapor obtained in this settler.

9. The catalytic cracking reaction device according to claim 8, wherein different catalysts are used in the first to third catalyst regeneration and recycle systems respectively.

10. The catalytic cracking reaction device according to claim 8, wherein a same catalyst is used in the first to third catalyst regeneration and recycle systems, said catalyst being a catalytic cracking catalyst.

11. The catalytic cracking reaction device according to claim 8, wherein a same catalyst is used in the first and second catalyst regeneration and recycle systems, said catalyst being a catalytic cracking catalyst, while another catalyst is used in the third catalyst regeneration and recycle system, said catalyst being one or more catalysts selected from the group consisting of conventional cracking catalysts, catalysts and promoters producing more ethylene-propylene, catalysts and promoters reducing the production of olefins, and desulphurization catalysts and promoters.

12 The catalytic cracking reaction device according to claim 8, wherein when a same catalyst is used in the first to third catalyst regeneration and recycle systems, the first riser (1) and second riser (2) may share the first settler (4), and the first, second, and third risers may share the first regenerator (5), thus, the tops of the first riser (1) and second riser (2) may be directly equipped in the first settler (4), and their bottoms are respectively connected with the buffer tank (7); the top of the third riser (3) is equipped in the third settler (6), and its bottom is connected with the first regenerator (5).

13. The catalytic cracking reaction device according to claim 8, wherein when a same catalyst is used in the first and second regeneration and recycle systems, and another catalyst is used in the third catalyst regeneration and recycle system, the first riser (1) and second riser (2) may share the first settler (4), and the first and second risers may share the first regenerator (5), but independent regeneration space is isolated in the first regenerator (5) for the use of the third catalyst regeneration and recycle system, thus, the tops of the first riser (1) and second riser (2) are directly equipped in the first settler (4), and their bottoms are respectively connected with buffer tank (7); the top of the third riser (3) is equipped in the second settler (6), and its bottom is connected with the independent regeneration space of the first regenerator (5).

14. The catalytic cracking reaction device according to claim 8, wherein when a same catalyst is used in the first and second regeneration and recycle systems, and another catalyst is used in the third catalyst regeneration and recycle system, the first riser (1) and

second riser (2) may share the first settler (4), and the first and second risers may share the first regenerator (5), thus, the tops of the first riser (1) and second riser (2) are directly equipped in the first settler (4), and their bottoms are respectively connected with the first regenerator (5); and the third riser (3) is a descending reactor, the outlet of which is equipped in the second settler (6) and the inlet is connected with the catalyst buffer tank (26).